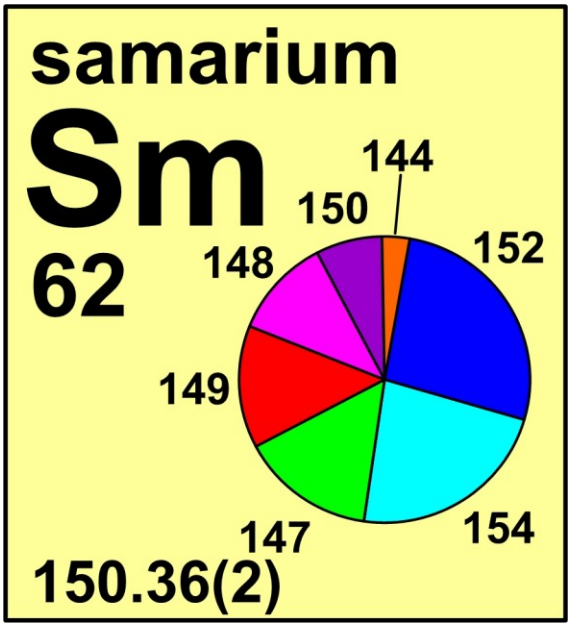
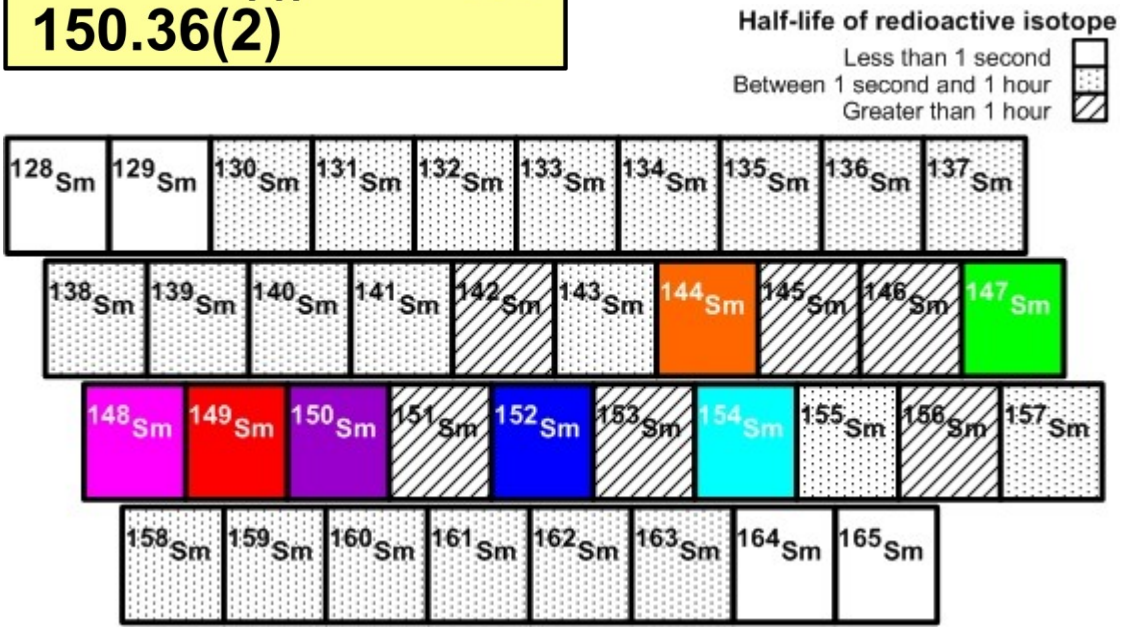
samarium



Stable isotope	Atomic mass*	Mole fraction
^{144}Sm	143.911 999	0.0307
^{147}Sm	146.914 8979	0.1499
^{148}Sm	147.914 8227	0.1124
^{149}Sm	148.917 1847	0.1382
^{150}Sm	149.917 2755	0.0738
^{152}Sm	151.919 7324	0.2675
^{154}Sm	153.922 2093	0.2275

* Atomic mass given in unified atomic mass units, u.



Important applications of stable and/or radioactive isotopes

Isotopes in geology

1) ^{147}Sm is used for determining formation ages of igneous and metamorphic rocks.

Figure 1: This is a picture of the formation of igneous rock. Igneous rock is formed from cooled and solidified magma. ^{147}Sm can be used to determine the age of this type of rock as well as metamorphic rocks.

Isotopes in medicine

1) ^{152}Sm is used to produce radioisotope ^{153}Sm for bone pain palliation.
2) Radioactive ^{153}Sm is used in medicine to treat the severe pain associated with cancers that have spread to bone. The drug is called Quadramet.
3) ^{147}Sm bombarded with ^{40}Ca produces radioisotope ^{182}Pb.

**Applications of samarium isotopes are still being researched and this page will be updated shortly. **